PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing *(day/month/year)*	23.07.2004
Applicant's or agent's file reference	**IMPORTANT NOTIFICATION**
2105/Dr.GotWeS	

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP 02/11791	22.10.2002	30.04.2002

Applicant
RÖHM GMBH & CO. KG et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Ruiz Fernandez, J Tel. +49 89 2399-7960

Form PCT/IPEA/416 (January 2004)

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
2105/Dr.Got/WeS		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP 02/11791	22.10.2002	30.04.2002
International Patent Classification (IPC) or both national classification and IPC		
A61K47/32		
Applicant		
RÖHM GMBH & CO. KG et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
20.05.2003	23.07.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Toulacis, C Telephone No. +49 89 2399-8638

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 02/11791

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-38 as originally filed

Claims, Numbers

1-17 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	8-10, 13-15
	No:	Claims	1-7, 11, 12, 16, 17
Inventive step (IS)	Yes:	Claims	8-10, 13-15
	No:	Claims	1-7, 11, 12, 16, 17
Industrial applicability (IA)	Yes:	Claims	1-17
	No:	Claims	

2. Citations and explanations

see separate sheet

Claims 1-7, 11, 12, 16, 17

(N) Document US 5 804 632 (**D1**) discloses low molecular copolymers (LMP) and the process for their preparation, falling within the scope of present claims 1-7, 11, 12, 16 and 17 (see D1; column lines 47-54; column 5, line 26 - column 6, line 44; column 12; lines 7-31; column 12, line 35 - column 13, line 21 (LMP1); column 16, lines 11-37 (LMP8); column 16, line 38 - column 17, line 18 (LMP9)).
In context with novelty it is pointed out that the expression "... and brings about at least 60% haemolysis .... red blood cells", characterises the invention by indication of the result to be achieved and does not add any distinguishing technical feature to the claimed polymers as such. (cf. Guidelines for Examination, chapter III, 4.7 PCT).
Moreover, said conditions of haemolysis are inherently fulfilled by the copolymers disclosed in D1, since they fulfill all other parameters.
Furthermore, according to the present application, EUDRAGIT^{R} L100-55 (which is already known) does constitute a suitable and preferred copolymer for the purposes of the presently claimed invention (description; page 9, lines 28-35).

(IS) The question - Is there inventive step - only arises if there is novelty.

(IA) The industrial applicability is beyond any doubt.

Claims 8-10, 13-15

(N) A pH-sensitive polymer as it is defined in present claims 1-7 in the form of a conjugate or a complex with a pharmaceutically effective natural or synthetic biomolecule or an active pharmaceutical ingredient is not disclosed in the document cited in the search report.
The same applies to the use according to claim 13.

(IS) The object of the present application is to provide a pH-sensitive polymer which is chargeable with biomolecules and which can be easily applied at concentrations of 20 - 150 µg/ml showing good haemolytic properties in the range of pH 5,5 and below pH 6,5 (whereas there shall be no haemolytic effect at pH 7,4), and is not effective against macrophage cell types and is suitable for parenteral application (description; page 7, lines 1-15).

This has been achieved by a pH-sensitive polymer according to claim 8, and is not

suggested by the cited prior art documents (page 33, example 7).

Document MURTHY N ET AL: "The design and synthesis of polymers for eukaryotic membrane disruption" JOURNAL OF CONTROLLED RELEASE, ELSEVIER SCIENCE PUBLISHERS B.V. AMSTERDAM, NL, vol. 61, no. 1-2, 27 August 1999 (1999-08-27), pages 137-143 (**D2**),

which represents the nearest prior art, discloses the red blood cell haemolysis by random copolymers of ethyl acrylate and acrylic acid (D2; page 141, 3.4).